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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
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THOMASSON, MEAGAN J

ART UNIT	PAPER NUMBER
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3714

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/973,285

Applicant(s)

SHAO, CHIA MU

Examiner

Meagan Thomasson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 12 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2001 and 16 May 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

Examiner acknowledges the amendments made to claim 8, as well as the cancellation of claims 12 and 13.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 1-6, 8-11, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuscone (GB 2,068,243) in view of what is known to one of ordinary skill in the art.

Regarding claim 1, Fuscone discloses an electric dart game comprising a dart (Fig. 1), a dartboard provided with a frame of a plurality of scoring areas by a plurality of radial spiders and circumferential spiders which are arranged crossly (Fig. 2,7 and 9), with a main body for receiving said dart and attached to said frame, and an electronic scoring means for displaying signals collected from the scoring areas (Fig. 5). Said scoring system uses a plurality of inductance coils (Fig. 2 and page 1, lines 125-129 connected to the electronic scoring system (Fig. 5). Fuscone also discloses said dart is made of, thus provided with, a magnetic substance (page 1, lines 75-78, 103). Each of said coils is associated with a corresponding scoring area and thus defines a scoring signal zone (Fig. 2). When said dart is thrown at said dartboard, a scoring signal is

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generated by said dart entering said signal zone and is transmitted to said scoring system (page 2, lines 20-24, 66-82). Regarding the limitation that the induction coil be coreless, the purpose of providing the iron core in the inductor is to concentrate the effect of any magnetic field within the center of the induction coil (within the iron cores). However, as is well known by one of ordinary skill in the art, an inductor in its simplest form is a conductive wire formed in the shape of a loop or coil, and will create the magnetic field inside the coil without the presence of the core. Therefore, the inclusion of iron cores in the inductors disclosed by Fuscone is not necessary, as the inductor would still perform the necessary function of creating a magnetic field within the center of the induction coil with or without the iron core, albeit the magnetic field would not have been as concentrated as had the iron core been in place. If the claims are given their broadest reasonable interpretation, the limitation of "a plurality of coreless inductance coils with predetermined turns, provided with said frame and connected to said electronic scoring means", wherein "each of said coreless inductance coils is associated with a corresponding one of said scoring areas and defines a scoring signal zone" is met by the invention disclosed by Fuscone, under the assertion that coreless induction coils is a matter of design choice and would have been obvious to one of ordinary skill in the art at the time of the invention. One would have been motivated to remove the core from the induction coil for any application that requires a small amount of inductance as in said dartboard to reduce the weight of the apparatus and lower manufacturing costs.

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Regarding claim 2, said inductance coils are provided with a predetermined shape and are engaged with said scoring areas (Fig. 2).

Regarding claim 3, the cross-section of said coils matches, and is smaller than said scoring areas (Fig. 2).

Regarding claim 5, said frame with said coils is disposed in the back of the main body (Abstract, lines 4-7).

Regarding claim 8, the point of said dart is of a magnetic substance (Page 1, line 104).

Regarding claim 9, the slender shaft of said dart is of a magnetic substance (page 1, lines 104-106).

Regarding claim 10, said point and said slender shaft of said dart are integrated and magnetized simultaneously (page 1, lines 104-121).

Regarding claim 11, the main body of said dartboard is made of material used on a traditional dartboard (page 1, lines 41-45). The magnetization of said dart is used for changing the distribution of the magnetic field of said inductance coil (page 2, lines 20-21).

Regarding claims 4 and 6, Fuscone discloses that said frame provided with said coils is arranged behind that of the main body. Fuscone does not disclose arranging said frame in front of or within the main body. However, without a showing of criticality, it would have been obvious to one of ordinary skill in the art at the time of the invention to dispose said frame in different locations, whether in front of the body for ease of

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mounting, or to manufacture said board with the frame integrated to provide a more sturdy device.

Regarding claim 14, Fuscone discloses inductance coils with cores for sensing the changes in the magnetic field (Page 2, lines 20-21) upon the entering of said dart on to said dartboard, but is silent about said dart moving through one of said coils. It is well known in the art that there are a plurality of different ways and designs in which inductance can be formed and measured and a plurality of coil types and materials that may be used.

Regarding claim 15, the generation of an electric field when said dart moves through said inductance coils, coreless or with cores, is an inherent property of inductance.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuscone in view of Clark (US 4,768,789).

Fuscone is silent on wiring the plurality of said coils corresponding to different scoring areas representing the same score together before being connected to said scoring means. However, it is a well-known concept in the art that the motherboard required to run the electronic scoring only has a limited number of inputs. Clark discloses a dartboard system that supports this concept. In describing the motherboard used to control the electronic scoring, Clark states that connections must be connected to the same lines in order for the total number of scoring positions on the dartboard to be accounted for (Column 5, lines 26-29). It would have been obvious to one of ordinary skill in the art at the time of the invention to limit the number of inputs required, inputs

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having the same signal should be tied together into the same input line in order to conserve the number of inputs needed into the motherboard, therefore limiting the cost of electronic components required as well as creating a simpler wiring scheme into the motherboard.

### ***Response to Arguments***

Applicant's arguments filed February 17, 2006 have been fully considered but they are not persuasive. Regarding applicant's argument that Fuscone does not disclose coreless inductance coils, the examiner argues that this is a matter of design choice and would have been obvious to one of ordinary skill in the art at the time of the invention. As stated on page 12 of applicant's arguments, the purpose of providing the iron core in the inductor is to concentrate the effect of any magnetic field within the center of the induction coil (within the iron cores), however, as is well known by one of ordinary skill in the art, an inductor in its simplest form is a conductive wire in the shape of a loop or coil, and will create the magnetic field inside the coil without the presence of the core. Therefore, the inclusion of iron cores in the inductors disclosed by Fuscone is not necessary, as the inductor would still perform the necessary function of creating a magnetic field within the center of the induction coil with or without the iron core, albeit the magnetic field would not have been as concentrated as had the iron core been in place. If the claims are given their broadest reasonable interpretation, the limitation of "a plurality of coreless inductance coils with predetermined turns, provided with said frame and connected to said electronic scoring means", wherein "each of said coreless

inductance coils is associated with a corresponding on of said scoring areas and defines a scoring signal zone" is met by the invention disclosed by Fuscone, under the assertion that coreless induction coils is a matter of design choice and would have been obvious to one of ordinary skill in the art at the time of the invention. One would have been motivated to remove the core from the induction coil for any application that requires a small amount of inductance as in said dartboard to reduce the weight of the apparatus and lower manufacturing costs.

Applicant's arguments with respect to claims 1-7, 14, and 15 have been considered but are moot in view of the new ground(s) of rejection. Specifically, the rejection under the first paragraph of 35 U.S.C. 112 has been withdrawn. The examiner agrees with the applicant regarding the statement made by the applicant on page 10 of the arguments that there is no need to include the iron core in order to induce a current in an induction coil, and therefore the written description requirements have been met by the applicant's specification. However, claims 1-7, 14, and 15 are rejected under 35 U.S.C. 103(a), rendering the arguments moot.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meagan Thomasson whose telephone number is (571) 272-2080. The examiner can normally be reached on M-F 830-5.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Olszewski can be reached on (571) 272-6788. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Meagan Thomasson  
November 27, 2006

  
JOHN M. HOTALING, II  
PRIMARY EXAMINER